

BINGEL et al.

Serial No. 09/701,658

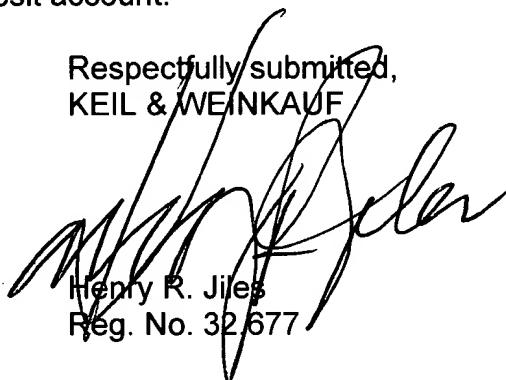
REMARKS

Original claims 1-8 have been cancelled in favor of new claims 9-14 to obviate a rejection based on the newly disclosed document (EP-A 00 629 632). See the attached Information Disclosure Statement filed herewith.

An action on the merits is solicited.

To the extent necessary, applicant(s) petition for an Extension of Time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 11-0345. Please credit any excess fees to such deposit account.

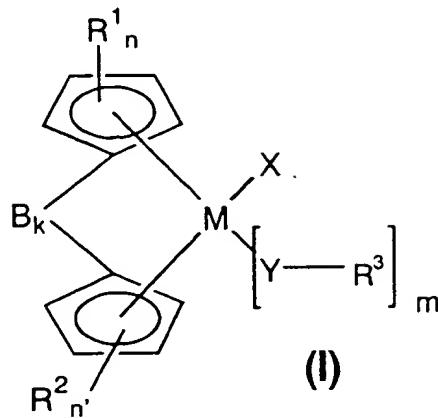
Respectfully submitted,
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COPY OF ALL CLAIMS

9. A compound of the formula (I),



where

M is a metal of transition group III, IV, V or VI of the Periodic Table of the Elements,

R¹ are identical or different and are each a radical Si(R¹²)₃, where R¹² are identical or different and are each a hydrogen atom or a C₁-C₄₀-group or R¹ is a C₁-C₃₀-group, or two or more radicals R¹ may be connected to one another in such a way that the radicals R¹ and the atoms of the cyclopentadienyl ring which connect them form a C₄-C₂₄-ring system which may in turn be substituted,

R² are identical or different and are each a radical Si(R¹²)₃, where R¹² are identical or different and are each a hydrogen atom or a C₁-C₄₀-group, or R² is a C₁-C₃₀-group, or two or more radicals R² may be connected to one another in such a way that the radicals R² and the atoms of the cyclopentadienyl ring which connect them form a C₄-C₂₄-ring system which may in turn be substituted,

R^3 are identical or different and are each a C_2 - C_{25} -alkenyl, C_3 - C_{15} -alkylalkenyl, C_5 - C_{24} -heteroaryl, C_7 - C_{30} -arylalkyl, C_7 - C_{30} -alkylaryl, fluorinated C_1 - C_{25} -alkyl, fluorinated C_6 - C_{24} -aryl, fluorinated C_7 - C_{30} -arylalkyl or fluorinated C_7 - C_{30} -alkylaryl,

X is a halogen atom,

Y is an element of main group VI of the Periodic Table of the Elements or a fragment CH_2 , CR^3_2 , NR^3 , PR^3 or $P(=O)R^3$,

n is from 0 to 4,

n' is from 0 to 4,

m is from 1 to 3,

k is 1,

B is a bridging structural element between the two cyclopentadienyl rings and one or both cyclopentadienyl rings are substituted in such a way that they form an indenyl ring.

10. A compound as claimed in claim 9, wherein

M is Ti, Zr or Hf,

R^1 are identical or different and are each a radical $Si(R^{12})_3$, where R^{12} are identical or different and are each a hydrogen atom a C_1 - C_{20} -alkyl, C_1 - C_{10} -fluoroalkyl, C_1 - C_{10} -alkoxy, C_6 - C_{10} -aryl, C_6 - C_{10} -fluoroaryl, C_6 - C_{10} -aryloxy, C_2 - C_{10} -alkenyl, or R^1 is C_1 - C_{25} -alkyl, C_2 - C_{25} -alkenyl, C_3 - C_{15} -alkylalkenyl, C_6 - C_{24} -aryl,

C_5-C_{24} -heteroaryl, C_7-C_{30} -arylalkyl, C_7-C_{30} -alkylaryl, fluorinated C_1-C_{25} -alkyl, fluorinated C_6-C_{24} -aryl, fluorinated C_7-C_{30} -arylalkyl, fluorinated C_7-C_{30} -alkylaryl, or C_1-C_{12} -alkoxy, or two or more radicals R^1 may be connected to one another in such a way that the radicals R^1 and the atoms of the cyclopentadienyl ring which connect them form a C_4-C_{24} -ring system which may in turn be substituted,

R^2 are identical or different and are each a radical $Si(R^{12})_3$, where R^{12} are identical or different and are each a hydrogen atom a C_1-C_{20} -alkyl, C_1-C_{10} -fluoroalkyl, C_1-C_{10} -alkoxy, C_6-C_{10} -aryl, C_6-C_{10} -fluoroaryl, C_6-C_{10} -aryoxy, C_2-C_{10} -alkenyl, or R^2 is C_1-C_{25} -alkyl, C_2-C_{25} -alkenyl, C_3-C_{15} -alkylalkenyl, C_6-C_{24} -aryl, C_5-C_{24} -heteroaryl, C_7-C_{30} -arylalkyl, C_7-C_{30} -alkylaryl, fluorinated C_1-C_{25} -alkyl, fluorinated C_6-C_{24} -aryl, fluorinated C_7-C_{30} -arylalkyl, fluorinated C_7-C_{30} -alkylaryl, or C_1-C_{12} -alkoxy, or two or more radicals R^2 may be connected to one another in such a way that the radicals R^2 and the atoms of the cyclopentadienyl ring which connect them form a C_4-C_{24} -ring system which may in turn be substituted,

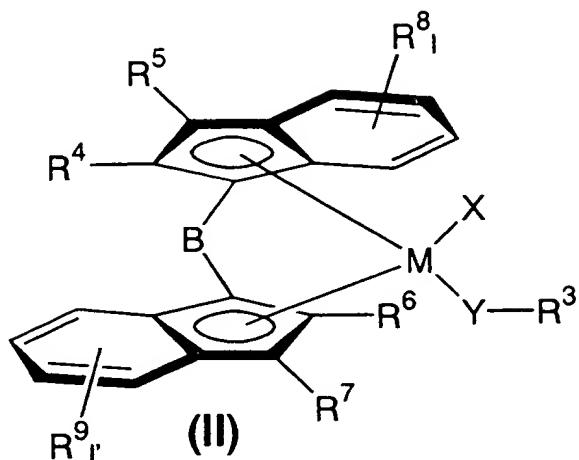
X is chlorine

Y is oxygen, sulfur or N R^3 ,

m is 1 and

one or both cyclopentadienyl rings are substituted in such a way that they form an indenyl ring which is substituted.

11. A compound of the formula (II)



where

M is Ti, Zr or Hf,

R^3 is isopropyl, tert-butyl, cyclohexyl or octyl, a C_5 - C_{24} -heteroaryl, C_7 - C_{30} -arylkyl, C_7 - C_{30} -alkylaryl, fluorinated C_6 - C_{24} -aryl, fluorinated C_7 - C_{30} -arylkyl, or fluorinated C_7 - C_{30} -alkylaryl

R^4 , R^6 are identical or different and are each a hydrogen atom or a C_1 - C_{20} -group,

R^5 , R^7 are identical or different and are each a hydrogen atom or a C_1 - C_{20} -group,

R^8 , R^9 are identical or different and are each a hydrogen atom, a halogen atom

or a C_1 - C_{20} -group, and two radicals R^8 or R^9 may form a monocyclic or polycyclic ring system which may in turn be substituted,

X is a halogen atom,

Y is an element of main group VI of the Periodic Table of the Elements or a fragment CH , $C R^3$, NR^3 , PR^3 or $P(=O)R^3$,

I , I' are identical or different and are each an integer from zero to 4,

B is a bridging structural element between the two indenyl radicals.

12. A compound as claimed in claim 11, wherein, in the formula (II),

M is zirconium,

R⁴, R⁶ are identical or different and are each a hydrogen atom, a C₁-C₁₈-alkyl, C₂-C₁₀-alkenyl, C₃-C₁₅-alkylalkenyl, C₆-C₁₈-aryl, C₅-C₁₈-heteroaryl, C₇-C₂₀-arylalkyl, C₇-C₂₀-alkylaryl, fluorinated C₁-C₁₂-alkyl, fluorinated C₆-C₁₈-aryl, fluorinated C₇-C₂₀-arylalkyl or fluorinated C₇-C₂₀-alkylaryl,

R⁸, R⁹ are identical or different and are each a hydrogen atom, a halogen atom a linear or branched C₁-C₁₈-alkyl group, C₂-C₂₅-alkenyl, C₃-C₁₅-alkylalkenyl, a C₆-C₁₈-aryl group which may be substituted, C₅-C₁₈-heteroaryl, C₇-C₂₀-arylalkyl, C₇-C₂₀-alkylaryl, fluorinated C₁-C₁₂-alkyl, fluorinated C₆-C₁₈-aryl, fluorinated C₇-C₂₀-arylalkyl or fluorinated C₇-C₂₀-alkylaryl, and two radicals R⁸ or R⁹ may form a monocyclic or polycyclic ring system which in turn may be substituted,

X is chlorine,

Y is oxygen, sulfur or NR³,

I, I' are identical or different and are each 1 or 2,

13. A catalyst comprising at least one compound as claimed in claim 9 and a support and, optionally, a cocatalyst.

14. A process for preparing a polyolefin which comprises polymerizing an olefinic monomer in the presence of a catalyst as claimed in claim 13.

15. The use of a catalyst as claimed in claim 13 for olefin polymerization.